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Report No. 71-37

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EVALUATION OF DOUGLAS-FIR BEETLE INFESTATIONS ON THE CLEARWATER DISTRICT, NEZPERCE NATIONAL FOREST, IDAHO

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An extensive infestation of Douglas-fir beetle, Dendroctonus pseudotsugae Hopk., was detected in the South Fork drainage of the Clearwater River in May 1971. An evaluation was conducted in June 1971 (Ciesla and McGregor 1971)[1/] which indicated a decreasing population. Additional activity was reported by District personnel in October 1971 and a second evaluation was made.

SURVEY METHODS

Infested groups of trees were examined on Grouse Ridge, and on the Salmon Mountain-Grangeville cutoff road (Fig. 1). Two 6- by 6-inch bark samples were removed from the north and south sides of infested trees in the areas examined. Brood counts were made to obtain ratios of existing broods to attacking adults, and to obtain parasite predator data. Plots using a BA factor of 20, were taken to obtain 1970-71 ratio of infested trees.

RESULTS

Ground examinations revealed approximately 50 to 60 percent of the Douglas-fir marked for cutting were "pitchouts" --trees in which beetles had not made successful attacks. Boring dust and pitch flow was plentiful, but examination of gallaries under the bark showed them to be calloused-over or resin filled.

1/ Ciesla, W. M. and M. D. McGregor, 1971. Evaluation of Douglas-fir beetle infestations on the Clearwater District, Nezperce National Forest, Idaho. USDA - Forest Service, Region 1, Division of State and Private Forestry, Report No. 71-8.

Trees successfully attacked during June 1971 have faded to an off-color green, and are easily differentiated from unsuccessful attacks. The cambium layer was stained brown in successfully attacked trees. Broods were mostly callow adults and will overwinter in this stage. Brood densities averaged 18 per foot in trees sampled on the cutoff road, and 58.4 per foot in trees on Grouse Ridge. The ratio of parent adults which attacked trees this summer, to broods that will emerge next June is 1.8:4. Brood samples were taken at breast height, and will not be as heavy as broods in samples taken higher up the infested bole.

Broods were heavily parasitized by Coeloides in some samples. However, parasitism appears too light to alter the course of the outbreak within the next year.

Ratio of 1970 to 1971 attacked trees was about 1:1 in areas examined. On Grouse Ridge, salvage logging had removed many trees and counts of 1970 to 1971 brood trees could not be made.

DISCUSSION AND RECOMMENDATIONS

An earlier evaluation of this infestation (Ciesla and McGregor 1971)[1/] indicated that Douglas-fir beetle infestations in the South Fork Clearwater River were declining. The basis for this conclusion was the apparent lack of successful 1971 attacks in the vicinity of old infestation centers. Sufficient 1971 attacks were observed during the course of the October evaluation to recommend a full-scale salvage program. A possible reason for this discrepancy may be in the timing of the earlier evaluation which was conducted in June 1971. Cool, moist conditions during May and June may have delayed the flight period of the beetle and successful attacks occurred somewhat later than normal.

Based on the above observations, infestation levels can be expected to remain at the same level or increase slightly in 1972. We recommend a full-scale salvage effort to remove infested trees prior to May 1, 1972. Forest Pest Control Funds may be used for marking brood trees.

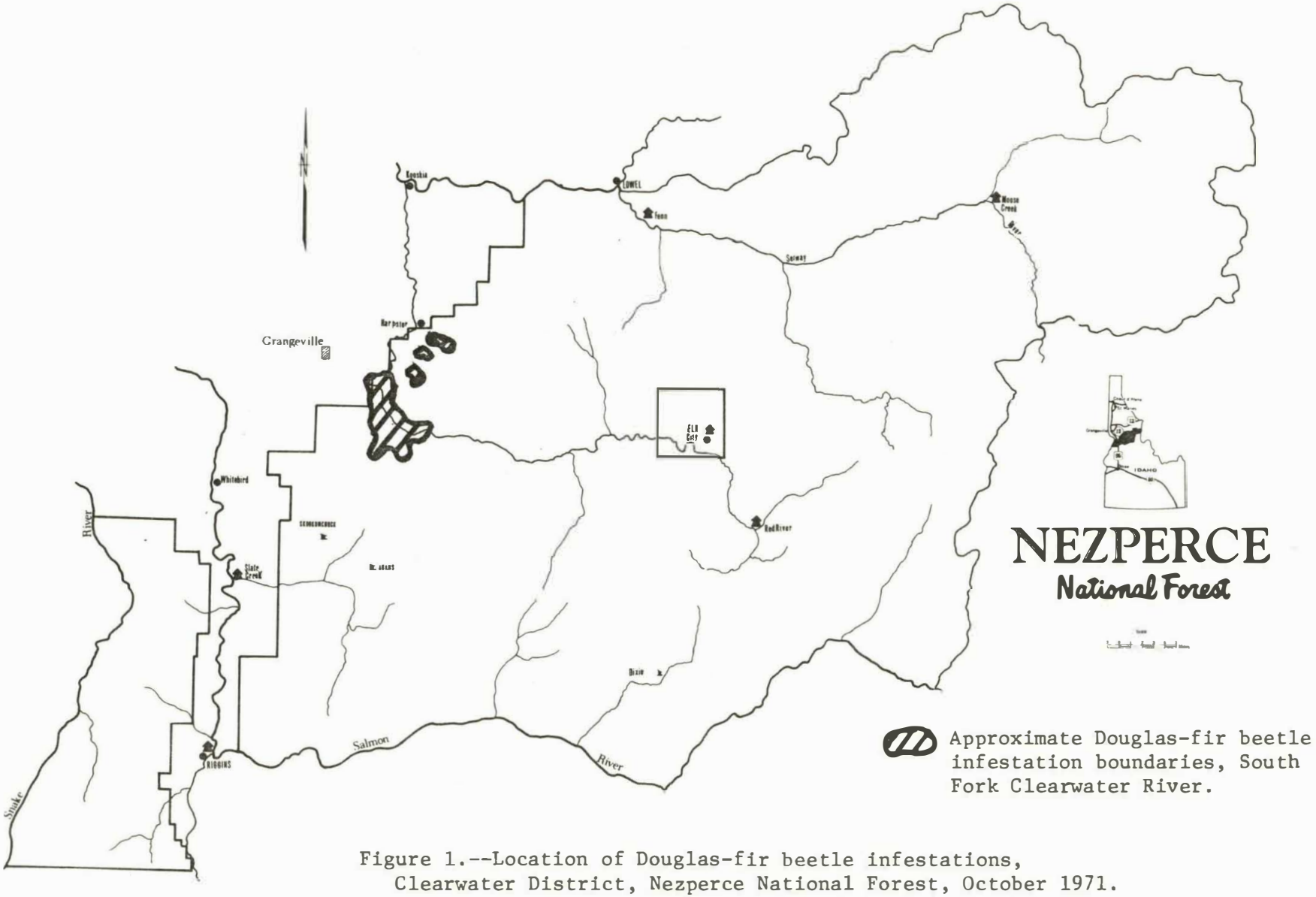

Figure 1.--Location of Douglas-fir beetle infestations, Clearwater District, Nezperce National Forest, October 1971.